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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,403	11/02/2005	Andrei Radulescu	NL 030481	9478

24737 7590 08/17/2007  
PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER
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COLEMAN, ERIC

ART UNIT	PAPER NUMBER
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2183

MAIL DATE	DELIVERY MODE
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08/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/555,403

Applicant(s)

RADULESCU ET AL.

Examiner

Eric Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 6/4/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Wingard (patent No. 6,182,183).

3. Wingard taught the invention as claimed including a data processing ("DP") system comprising(as per claim 1): Split protocol transmission method (e.g., see col. 2, lines 18-25) for transmitting data and a communication thread identifier for said data along a communication path from a source functional unit (SFU) to a destination functional unit (DFU) (e.g., see figs. 1,4,5,col. 3,lines 8-22 and col. 4, lines 20-46), wherein in the communication path a data consuming functional unit (CFU) and a data producing functional unit (PFU) directly communicate to each other by means of a handshake procedure (e.g., see col. 13, lines 3-12) wherein the data consuming functional unit (CFU) indicates a communication thread identifier (TID) to the data producing functional unit (e.g., see col. 13, lines 42-55) and the data producing functional unit provides data related to said communication thread identifier to said data consuming functional unit (e.g., see col. 13,lines 13-18).

4. As per claim 2, Wingard taught the data producing functional unit (PFU) indicates (ACCEPTP) when it has accepted the communication thread identifier [ReqAccept](e.g.,

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see col. 13, lines 3-13 and col. 13, lines 42-55)[in the embodiment where the request thread ID is used the Respthread ID is taught as being required where each identifies the current thread number and the Respthread is required to identify the threads command is being responded to such as when a read is to a slave device which is the data producer].

5. As per claim 3, Wingard taught the data producing functional unit accepts the communication thread identifier within a fixed number of cycles (e.g., see col. 9, lines 1-15)[ the bus transactions are predetermined and ordered and each is required to complete in a predetermined number of cycles also the number of cycles take for the request/response transaction is predetermined at time of system implementation based on operating frequency and module latencies and in the embodiment that uses the thread ID the thread ID is required with the communication (e.g., see col. 13, lines 42-55)].

6. As per claim 4, Wingard taught the data consuming functional unit (CFU) indicates (ACCEPTC) when it has accepted the data from the data producing functional unit (PFU) (e.g., see col. 13, lines 1-13)[ when a slave has received and accepted the data to be transferred and the request transaction data already transferred the ReqAccept is transmitted by the consuming slave in a write transaction to the slave].

7. As per claim 5, Wingard taught the data consuming functional unit (CFU) accepts the data from the data producing functional unit (PFU) within a fixed number of clock cycles (e.g., see col. 9, lines 1-15) ][ the number of cycles take for the request/response

transaction is predetermined at time of system implementation based on operating frequency and module latencies].

8. As per claim 6, Wingard taught the data producing unit (PFU) provides information indicating whether the one of the following situations exist, the data consuming functional unit (CFU) has to continue indicating the communication thread identifier (TID) (e.g. see col. 13, lines 62-67)[the data producing slave indicates to the data consuming master the data producing slave is busy and therefore the master is required to later send the request when the slave was ready for a read], the indicated communication thread identifier (TID) is accepted [ReqAccept](e.g., see col. 13, lines 3-13 and col. 13, lines 42-55)[in the embodiment where the request thread ID is used the Respthread ID is taught as being required where it identifies the current thread number and the Respthread is required to identify the threads command is being responded to such as when a read is to a slave device which is the data producer].

, the second functional unit (CFU) is requested to indicate an other communication thread identifier[(e.g., see col. 13, lines 56-66)][sending the busy single indicates to the other functional unit that the busy functional unit cannot accept a request and therefore the other functional unit is to later send a request with the required thread ID].

9. As per claim 7, Wingard taught a further handshake procedure wherein information is exchanged from the data producing functioning unit (PFU) to the data consuming functional unit (CFU) to exchange communication thread information, the further handshake procedure being independent of the handshake procedure defined in claim 1(e.g., see col. 13, lines 1-18 and col. 13, lines 24-67).

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10. As per claim 8, Wingard taught the data producing functional unit (PFU) provides a thread acceptance signal (ACCEPTP) when it has accepted the indication for the communication thread (TID), and defers providing data until after it has provided the thread acceptance signal[ReqAccept](e.g., see col. 13, lines 3-13 and col. 13, lines 42-55)[in the embodiment where the request thread ID is used the Respthread ID is taught as being required where each identifies the current thread number and the Respthread is required to identify the threads command is being responded to such as when a read is to a slave device which is the data producer] [further with the busy signal sent when the slave cannot accept a transaction the Wingard system defers providing data until it is ready and has provided the thread acceptance signal (e.g., see col. 13, lines 24-67 and col. 13, lines 1-18).

11. As per claim 9, Wingard taught a processing system comprising a plurality of functional units the processing system being arranged to transmit data and communication thread identifier for said data according to a split protocol (e.g., see col. 2, lines 18-25) along a communication path from a source functional unit (SFU) to a destination functional unit (DFU) (e.g., see figs. 1,4,5,col. 3,lines 8-22 and col. 4, lines 20-46), a data consuming functional unit (CFU) and a data producing functional unit (PFU) in the communication path being arranged to directly communicate to each other by means of a handshake thread identifier (TID) to the data producing functional unit (e.g., see col. 13, lines 3-12 and col. 13, lines 42-55) and the data producing functional

unit provides data related to said communication thread identifier to said data consuming functional unit(e.g., see col. 13,lines 13-18).

12. As per claim 10, Wingard taught the data consuming functional unit is an application specific processor (ASP) capable of scheduling tasks based on incoming read data (e.g., see fig. 12 and col. 13, lines 1-67)[The consuming master can send a respthreadbusy signal when is cannot take any response (e.g., on reads) associated with certain threads, this schedules the tasks based on incoming read data as the thread ID is taught in one embodiment as incoming data required for the read transaction].

13. As per claim 11, Wingard taught the data consuming functional unit is a memory controller (DRAM controller 1208) comprising a scheduler for providing indications of communication thread identifier in an order which reduces memory access time (e.g., see fig. 12 and col. 13, lines 1-67 and claim 15 lines 1-52)[read and write transactions are decoupled so they can be performed concurrently reduces memory access time where in the example, a read can be performed without waiting for a long latency write (e.g., see col. 13, lines 13-32)].

### ***Response to Arguments***

The rejections as set forth in the last office action are hereby maintained.

Applicant's arguments filed 6/4/07 have been fully considered but they are not persuasive.

In the remarks applicant argues in substance that Wingard did not teach data consuming functional unit (CFU) indicates a communication thread identifier (TID) to

the data producing functional unit and the data producing functional unit provides data

related to the communication thread identifier to the data consuming functional unit as

allegedly shown in fig.2 of the present application. As to this argument the Examiner

contends that Wingard taught the claimed invention as follows: Wingard taught an

embodiment with the use of thread identification send both from the master to the slave

(ReqThreadID) and from the slave to the master RespThreadID (e.g., see fig. 11 and

col. 12, line 43-col. 13, line 67). These thread IDs necessarily would have been the

same because the Wingard taught the thread ID sent from the slave to the master was

used to indicate which thread's command is being responded to. Therefore for any

transaction in this embodiment thread ID is sent both from a consumer to a producer

and from a producer to the consumer. Wingard taught write transactions where data

from the master is written to the slave and read transactions where data is read from the

slave and transmitted to the master. Therefore in a write transaction data related to the

thread ID is sent from the producer to the consumer (i.e., the master to the slave). Also

in a read transaction the producer would have been the slave and the consumer would

have been the master. Also, in each transaction (read and/or write) a thread id is sent

both from the producer to the consumer and from the consumer to the producer to

ensure that the data for correct thread is being sent especially when there is a delay in

the communication(e.g., see col. 13, lines 42-65). Therefore, clearly the Wingard

teachings meet the claimed limitations.

### ***Conclusion***



**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (571) 272-4163. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EC



**ERIC COLEMAN**  
**PRIMARY EXAMINER**